SL156 STUDIO LINK

R1 - LARGE FORMAT CONSOLE INTERFACE

PRELIMINARY MANUAL

Revision 9 Compatible with v0.9a Software - Friday, 18 January 2002

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SECTION 1 FEATURE LIST

TRANSPORT CONTROL FROM SSL OR NEVE TRANSPORTS

A 25 way connector takes transport keys and lamp tallies to and from the **R1,** for the console user. This connector is the SSL standard that also provides "TACH" & "DIRECTION" for the SSL G SERIES COMPUTER.

The lamp tally drivers are 24V. (SSL desks are fitted with 36V bulbs, for "longer life")

48 TRACK RECORD READY ARMING AND TALLIES FROM SSL

Two 96 way DL connectors match to the SSL DL patch under the 4000, 6000, 8000 & G series desks, connecting the Record Ready signals. These two connectors take 24 READY Key and Lamp tallies each to and from the **R1**.

The Lamp tally drivers are 24V. (SSL desks use opto-isolators to read the tally signals)

DIRECT CUE CONTROL FROM SSL AUTOMATION SYSTEM - INSTANT LOCATES

A 25 way connector links to the SSL parallel card, that (in the past) provided synchroniser support for the long defunct SSL Z8 machine control package.

With this port enabled the SSL G SERIES COMPUTER is able to issue Locate / Cue commands and set offsets, as well as receiving position and lock information. Unfortunately the SSL still requires "TACH" & "DIRECTION"

The connection is via an 8 bit bi-directional parallel port (with handshaking) running at 5V. This limits dramatically the safe cable length of this connection.

The Timeline and Motionworks companies have used this connection to provide LYNX and other synchroniser support for the SSL G SERIES COMPUTER.

DIRECT CUE CONTROL FROM NEVE FLYING FADERS - INSTANT LOCATES

A 9 way RS232 port links to the NEVE FLYING FADERS COMPUTER which "simulates" an Adams-Smith 2600 synchroniser Serial Interface module.

This port allows the NEVE FLYING FADERS COMPUTER to be able to issue Locate / Cue, Cycle and some direct transport commands.

The Motionworks company has used this connection to provide LYNX and other synchroniser support for the NEVE FLYING FADERS COMPUTER.

SELECT R1 OR STANDARD MACHINE WITH NO PATHCHING

A 25 way connector also provides for a standard machine (already interfaced to the console) to be swapped in place of the **R1**.

This allows for going back to a "2 inch" session with no rewiring. This feature provides instant swapping between the **R1** and any parallel controlled tape machine.

The connector is "hard" switched to the Transport Control connector via relays.

The choice between machines can be controlled directly from the SSL G SERIES COMPUTER.

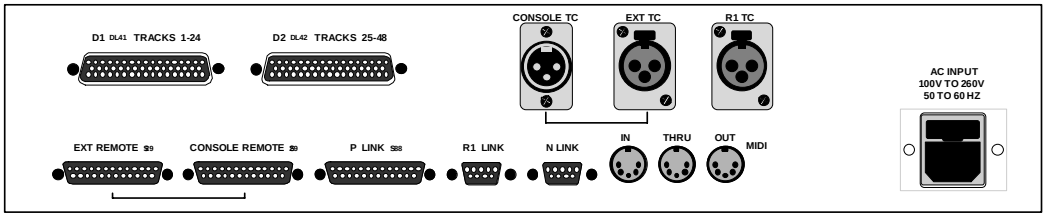
SECTION 2 FRONT & REAR PANELS

SL156 FRONT PANEL

This is a very simple panel that allows for "activity" indicators and simple transport control (mainly for test purposes).

SL156 REAR PANEL

Providing access to all connectors.



SECTION 3 TRANSPORT REMOTE FUNCTIONS

NORMAL KEY FUNCTIONS:

The transport key and **LAMPS** **<<** **>>** **STOP** **PLAY** **REC** perform their normal functions.

ADDITIONAL KEY FUNCTIONS:

The **SL156** provides an exact copy of mechanical transport actions i.e. all keys react to on and off actions e.g. with the **STOP** key held down the **PLAY** key will put the **R1** into play, as soon as the **PLAY** key is released the **R1** will go back to stop.

There are some additional combinations from the remote keys that provide some additional functions, without any compromise to normal use and reliability.

- Pressing **STOP** and then holding **>>** down puts the **R1** into half speed shuttle forward. If **STOP** is then released first, the **R1** will stay in this mode.
- Pressing **STOP** and then holding **<<** down puts the **R1** into half speed shuttle reverse. If **STOP** is then released first, the **R1** will stay in this mode.
- Pressing **<<** and **PLAY** puts the **R1** into reverse play.
- The **<<** and **>>** keys provides two ways of fast forward, these two modes are set from via the front panel. (see **Alternative Mode)**
    1. In normal (default) mode pressing **<<** or **>>** puts the **R1** into fast forward / rewind.
    2. In the alternative mode pressing **<<** or **>>** the first time puts the **R1** into **8** x play speed forward wind. The second time **16** x play speed.

ADDITIONAL LAMP FUNCTIONS:

- The **PLAY** **LAMP** flashes if the **R1** is in play but no timecode is being read – this function can be changed via the front panel *(see below)*.
- The **STOP** **LAMP** flashes with **<<** or **>>** to indicate slow wind, shuttle or jog.
- The **<<** **LAMP** flashes with a solid **PLAY** to indicate reverse play.

SECTION 4 FRONT PANEL OPTIONS

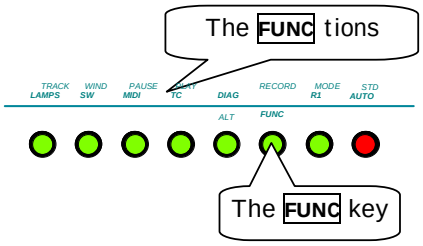
NORMAL OPERATION MODE

The transport key and **LEDS** [<<] [>>] [STOP] [PLAY] perform their normal functions.

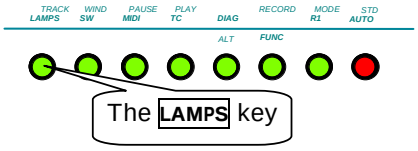
- The [PLAY] **LED** flashes if the **R1** is in play but no timecode is being.
- The [STOP] **LED** flashes with [<<] or [>>] to indicate slow wind, shuttle or jog.
- The [FUNC] key selects the **FUNCTION MODE** *(see below)*.
- The [ALT] key selects the **ALTERNATIVE MODE** *(see below)*.
- The [R1] key selects between the **R1** and **EXTERNAL** machine. If the **R1** is selected the **LED** flashes to indicate no communication.
- The [AUTO] **LED** flashes to indicate no communication with the automation system.

FUNCTION MODE

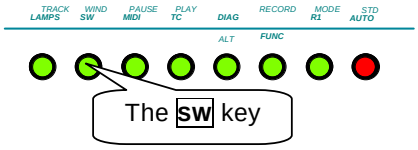
By pressing the **FUNC** key the row of bold blue functions are enabled.



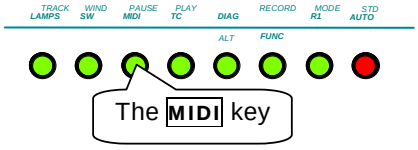
- **LAMPS** this key puts the unit into lamp test mode – the unit cycles through all 24V lamps (Record Ready and Transport) on and off. This is a good way of ratifying that cables to the console are functioning.



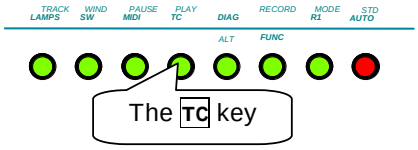
- **SW** this key puts the unit into switch test mode – the unit waits for a switch closure and toggles the corresponding lamp. This test is only useful after the lamp test has been conducted successfully. *(not available)*



- **MIDI** this key puts the unit into MIDI test mode - the unit transmits a MIDI message stream and lights the **SL156** front panel **STOP LED** if the MIDI message is received. **MIDI** mode allows the unit's MIDI IN/OUT to be tested.



- **TC** this key puts the unit into timecode mode - the unit reads timecode and lights the **SL156** front panel **PLAY LED** if code is found on the **R1 TC** XLR. The unit sends out play speed timecode from **00:00:00.00** on the **CONSOLE TC** XLR as soon as this mode is enabled. **TC** mode allows the unit's timecode functions to be tested independently.



- **DIAG** this key enables the **LAMPS** function to cycle all 24V **LAMPS** together – this is rather an aggressive way of testing.

- **R1** key function... *(not available)*

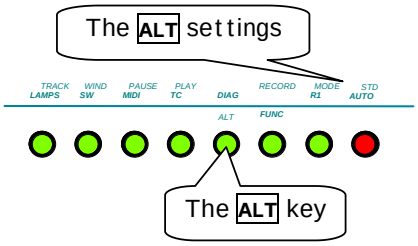
- **AUTO** this key puts the unit into P-LINK S88 PORT test mode - the unit continually swaps the direction of the data and handshaking lines to test that each bit can read and write. **This test requires a special 25 way D cable and should not be used when the P-LINK is in use with an SSL computer.**

  Cable details - 25 way D Male, cross-connected as follows:

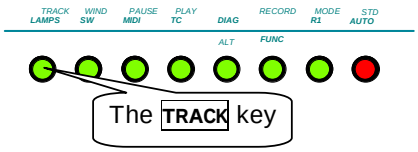
1	-----	5
14	-----	7
2	-----	8
15	-----	13

ALTERNATIVE MODE

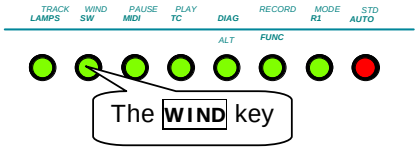
By pressing (and holding down) the **ALT** key the top row of blue settings are displayed. These settings maybe altered only, while the **ALT** key is held down.



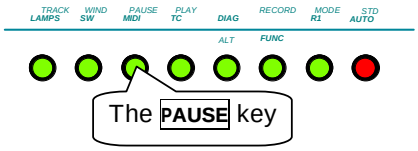
- **TRACK** setting - when the **LED** is **ON**, the **SL156** controls track arming using the "3324" method (as used by the **R1**). When the **LED** is **OFF**, the **SL156** controls track arming using the "Radar" method.



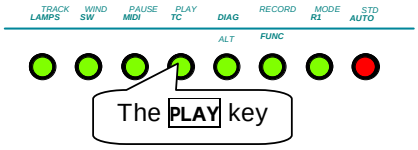
- **WIND** setting- when the **LED** is **ON**, the **SL156** uses the **R1** ballistics with **<<** and **>>.** When the **LED** is **OFF**, the **SL156** uses three set wind speeds. (see **SECTION 4 TRANSPORT REMOTE FUNCTIONS**)



- **PAUSE** setting - when the **LED** is **ON** a ***PAUSE***(P2) command is issued in stop, when the **LED** is **OFF** a ***STOP***(P2) command is issued in stop.



- **PLAY** setting - when the **LED** is **ON**, the **PLAY** lamp will flash when there's no timecode present in play, when the **LED** is **OFF** the **PLAY** lamp stays solid always in play. Note: the **SL156** front panel **PLAY** **LED** always flashes when there's no timecode present in play.



- **RECORD** setting... *(no function defined yet)*
- **MODE** setting – follows the **TRACK** state at present.
- **STD** setting - when the **LED** is **ON**, the SSL G SERIES COMPUTER protocol and **P LINK** are enabled, when the **LED** is **OFF** the NEVE FLYING FADERS COMPUTER protocol and **N LINK** are enabled.

SECTION 5 SSL™ G SERIES COMPUTER SETUP

SSL PROGRAM DISK SETUP

To run the Studio Link 156 with an SSL G SERIES COMPUTER, certain parameters need to be set up on the G computer.

It is essential to make a copy of the current (in use) program disk, so that all previous options are backed up.

On the G series keyboard:

- Boot program (**BEGIN**)
- Setup Program Disk options

  Password = **SSL [EXECUTE] 4100**
  [SETUP] [EXECUTE]
  # = System Menu ----------

Synchroniser Controller	1
Master Transport Selector	Yes

  [END] [END] [END]

- Reboot program

  BEGIN [EXECUTE]

- Setup SYNC

  [SETUP] [EXECUTE]
  M = Maintenance Menu
  [SYNC]
  I = Synchroniser Interface ----------

Z8 Interface no	2

  [END]

  [SETUP] = Machine set-up. ----------

A	R1	16
B	External	1?
C		
D		
E		

  [END]

  [SYNC] = Synchroniser set-up. ----------

Maximum number of masters	2
Offsets can be read from synchronizer	Yes
Single machine mode	No
Timecode generation	No

  [END]

  S = Misc. sync options ----------

Time to wait for synchroniser	5.00
Play to park	No
Play to park roll time	0.00
Film machine drop-out option	No

  [END] [END] [END]

- Setup TAPE MACHINE

[SETUP] [EXECUTE]
M = Maintenance Menu
T = Tape Machines Details
select a machine "spare" 16 ?? **[EXECUTE] ----**

```
Autolocate type                | 3
Autolocate decision interval   | 0.02
Forward direction sense (L/H)  | LOW
Multi play speeds (Y/N/S)?     | NO
Pulses/second at std. speed    | FRAME
Target window                  | 0.00
Drop-out command type          | 1
Drop-in command type           | 1
Time for machine to startup    | 1.00
Time before sure tape stopped  | 0.05
Pessimism factor (fwd)         | 10
Pessimism factor (bkwd)        | 10
Short locate time (secs)       | 1
Max stopping distance          | 2
Frames to stop from play       | 0.10
Frame jog card fitted          | NO
```

[END] [END] [END]

- Setup Timecode

[SETUP] [EXECUTE] More?
Y = Yes
S = This Session ----------

```
Timecode frames per second     | --
Using dropframe                | --
Using VITC?                    | YES
Display time(T) or feet(F)     | --
Display frames                 | --
Runup (preroll) time           | --
...
```

[END]

[SYNC] = Sync options ----------

```
Synchroniser in use            | YES
Resolve master machine         | NO
Slow lock mode                 | NO
Group locates                  | NO
```

[END] [END] [END]

Some of these parameters will be different, depending on the particular installation. Some others maybe different because of engineer preference, these are indicated with "--" in the appropriate menus.

Not all of the tape machine parameters are fully understood (by SSL or us) and may require additional modification to get the best performance from the system.

- **AM** - to select the **R1** from the SSL type **AM** this selects the "A" machine as the master, enabling the **R1**. Then type **[SYNC] ON** to allow the SSL G SERIES COMPUTER to use the Z8 port.

- **BM** - to select **EXT** from the SSL type **BM** this selects the "B" machine as the master, enabling the **EXT** machine. Then type **[SYNC] OFF** to allow the SSL G SERIES COMPUTER to be able to locate the **EXT** machine normally.

SSL HARDWARE SETUP

CONSOLE REMOTE S29 - 25 WAY D TYPE MALE.

A 25 way D connector takes Transport Key and Lamp tallies to and from the **R1** for the console user, this connects to the Console Remote connector on the SSL patch under the 4000, 6000, G series desks. This connector is the SSL standard that also provides "TACH" & "DIRECTION" for the SSL G SERIES COMPUTER. The Lamp tally drivers are 24V.

D1 DL41 TRACKS 1-24, D2 DL42 TRACKS 25-48 - 50 WAY D TYPE FEMALE.

The two (2) 50 way D connectors provide the 48 Record Ready signals these connect to two 96 way DL connectors (DL41 & DL42) on the SSL DL patch under the 4000, 6000, 8000 & G series desks. Connecting to the Record Ready signals.

These two connectors take 24 READY Key and Lamp tallies each to and from the **R1**.

The Lamp tally drivers are 24V.

P LINK S88 - 25 WAY D TYPE MALE.

This is connected to the S88 connector, a 26 way ribbon on an optional card (**Z8 COMMUNICATIONS CARD)** in the SSL G SERIES COMPUTER.

With this port enabled, the SSL G SERIES COMPUTER is able to issue Locate / Cue commands, as well as receiving position and lock information. This is an 8 bit bi-directional parallel port (with handshaking) running at 5V.

If this connection is made and the software is set-up the AUTO LED on the **SL156** will go solid. Flashing indicates no (or intermittent) connection. Note that during some operations the SSL stops "talking" on this port so the odd flash maybe seen.

CONSOLE TC - XLR MALE, R1 TC - XLR FEMALE.

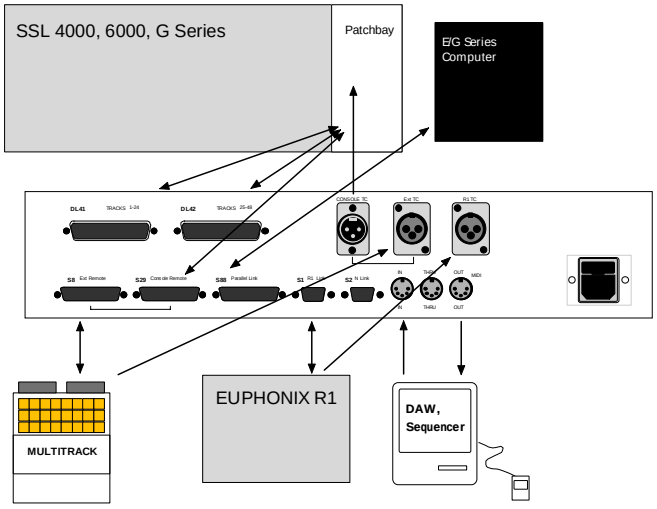
The timecode out of the **R1** is connected to the **R1** TC female XLR. The male XLR (CONSOLE TC) goes to the SSL SMPTE READER via the patch.

If the **R1** is in play, the PLAY **LED** on the **SL156** will go solid. Flashing indicates no timecode.

R1 LINK - 9 WAY D TYPE FEMALE.

This is connected to the **R1 Studio Hub** (CONTROL 9 WAY D TYPE FEMALE). This controls the **R1**.

If the **R1** is connected and communicating the **R1** PLAY **LED** on the **SL156** will go solid. Flashing indicates no communication.



SECTION 6 NEVE™ FLYING FADERS COMPUTER SETUP

NEVE PROGRAM DISK SETUP

To run the Studio Link 156 with a NEVE FLYING FADERS COMPUTER, the transport control needs to be enabled and the **SL156** connected to the NEVE FLYING FADERS COMPUTER.

That's about all you have to do.

SSL HARDWARE SETUP

CONSOLE REMOTE S29 - 25 WAY D TYPE MALE.

A 25 way D connector takes Transport Key and Lamp tallies to and from the **R1** for the console user, this connects to the Console Remote connector on the NEVE FLYING FADERS COMPUTER.

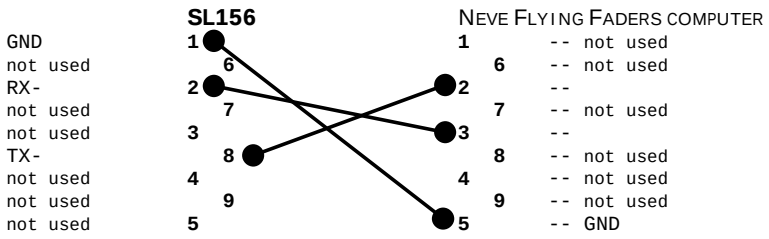
N LINK - 9 WAY D TYPE MALE.

This is connected to the NEVE FLYING FADERS COMPUTER.

This port enables the NEVE FLYING FADERS COMPUTER to be able to issue Locate / Cue commands, as well as receiving position and lock information. This is an RS232 serial port running at 9600 BAUD.

If this connection is made and the software is set-up the AUTO LED on the **SL156** should go solid. Flashing indicates no (or intermittent) connection. The odd flash is not unusual.

N LINK Cable



SL156 N Link to NEVE FLYING FADERS COMPUTER cable is: **pin 1 to 5, pin 2 to 3, pin 8 to 2.**

CONSOLE TC - XLR MALE, R1 TC - XLR FEMALE.

The timecode out of the **R1** is connected to the **R1** TC female XLR. The male XLR (CONSOLE TC) goes to the NEVE FLYING FADERS COMPUTER.

If the **R1** is in play, the PLAY **LED** on the **SL156** will go solid. Flashing indicates no timecode.

R1 LINK - 9 WAY D TYPE FEMALE.

This is connected to the **R1 Studio Hub** (CONTROL 9 WAY D TYPE FEMALE). This controls the **R1**.

If the **R1** is connected and communicating the **R1** PLAY **LED** on the **SL156** will go solid. Flashing indicates no communication.

SECTION 9 CONNECTOR PINOUTS

EXT REMOTE S29 - 25 WAY D TYPE FEMALE.

1		-- not connected
	14	-- not connected
2		-- LAMP COMMON
	15	-- SWITCH COMMON
3		-- SWITCH RWD
	16	-- LAMP RWD
4		-- SWITCH FWD
	17	-- LAMP FWD
5		-- SWITCH STOP
	18	-- LAMP STOP
6		-- SWITCH PLAY
	19	-- LAMP PLAY
7		-- not connected
	20	-- not connected
8		-- SWITCH RECORD
	21	-- LAMP RECORD
9		-- TACH 1
	22	-- TACH 2
10		-- DIR 1
	23	-- DIR 2
11		-- not connected
	24	-- not connected
12		-- not connected
	25	-- not connected
13		-- not connected

CONSOLE REMOTE S29 - 25 WAY D TYPE MALE.

1		-- not connected
	14	-- not connected
2		-- LAMP COMMON
	15	-- SWITCH COMMON
3		-- SWITCH RWD
	16	-- LAMP RWD
4		-- SWITCH FWD
	17	-- LAMP FWD
5		-- SWITCH STOP
	18	-- LAMP STOP
6		-- SWITCH PLAY
	19	-- LAMP PLAY
7		-- not connected
	20	-- not connected
8		-- SWITCH RECORD
	21	-- LAMP RECORD
9		-- TACH 1
	22	-- TACH 2
10		-- DIR 1
	23	-- DIR 2
11		-- not connected
	24	-- not connected
12		-- not connected
	25	-- not connected
13		-- not connected

P LINK S88 - 25 WAY D TYPE FEMALE.

1		-- DATA 0
	14	-- DATA 1
2		-- DATA 2
	15	-- DATA 3
3		-- DATA 4
	16	-- DATA 5
4		-- DATA 6
	17	-- DATA 7
5		-- SSL OUT
	18	-- not connected
6		-- not connected
	19	-- not connected
7		-- SSL IN
	20	-- not connected
8		-- SSL INT
	21	-- not connected
9		-- not connected
	22	-- not connected
10		-- not connected
	23	-- not connected
11		-- 0V
	24	-- 0V
12		-- not connected
	25	-- not connected
13		-- SSL RST

D1 & D2 - 50 WAY D TYPE FEMALE.

1		34 --
	18	--
2		35 --
	19	--
3		36 --
	20	--
4		37 --
	21	--
5		38 --
	22	--
6		39 --
	23	--
7		40 --
	24	--
8		41 --
	25	--
9		42 --
	26	--
10		43 --
	27	--
11		44 --
	28	--
12		45 --
	29	--
13		46 --
	30	--
14		47 --
	31	--
15		48 --
	32	--
16		49 --
	33	--
17		50 --

CONSOLE TC - XLR MALE.

```
1       -- GND
2       -- TC+
3       -- TC-
```

EXT TC - XLR FEMALE.

```
1       -- GND
2       -- TC+
3       -- TC-
```

R1 TC - XLR FEMALE.

```
1       -- GND
2       -- TC+
3       -- TC-
```

R1 LINK - 9 WAY D TYPE FEMALE.

```
1       -- GND
   6    -- GND
2       -- RX-
   7    -- RX+
3       -- TX+
   8    -- TX-
4       -- GND
   9    -- GND
5       --  not connected
```

N LINK - 9 WAY D TYPE FEMALE.

```
1       -- GND
   6    -- GND
2       -- RX-
   7    -- RX+
3       -- TX+
   8    -- TX-
4       -- GND
   9    -- GND
5       --  not connected
```

MIDI IN – 5 WAY DIN FEMALE.

```
1       --  not connected
2       --  not connected
3       --  not connected
4       -- RX+
5       -- RX-
```

MIDI THRU – 5 WAY DIN FEMALE.

```
1       --  not connected
2       -- GND
3       --  not connected
4       -- TX+
5       -- TX-
```

MIDI OUT – 5 WAY DIN FEMALE.

```
1       --  not connected
2       -- GND
3       --  not connected
4       -- TX+
5       -- TX-
```

SECTION 10 SPEC SHEET

INS & OUTS:

2 independent serial RS422 ports

1 independent MIDI IN OUT and THRU port

48 track (Record Ready) control and tally lines

Timecode IN (XLR) from **R1**

Timecode IN (XLR) from External Tape Machine

Timecode OUT (XLR) variable gain

Parallel Tape Remote - to Console

Parallel Tape Remote - External Tape Machine

8 bit parallel control port

MECHANICAL:

19" 2U rack

POWER:

Auto ranging AC voltage input: 100-260v

Approx. 30watts

APPENDIX A R1 TO CONSOLE CHART

THIS CHART IS TO HELP PICK THE CORRECT CONFIGURATION FOR AN R1 + SL156
This list is based on preliminary data so far…

Make	Model	Transports	Record Ready	Comms	TC	SL156?
SSL	4000	Yes 25D	Yes (48+)	Parallel	XLR	**Yes**
	5000	?	?	?		
	6000	Yes 25D	Yes (48+)	Parallel	XLR	**Yes**
	G	Yes 25D	Yes (48+)	Parallel	XLR	**Yes**
	9000/J		Yes (48)	P2		**Yes**
Neve	V	Yes 25D	No	?	XLR	
	inc Flying Faders	Yes 25D	No	AS	XLR	**Yes**
	Capricorn	Yes 25D	Yes (48)	AS	XLR	**Yes**
Sony	Oxford R3	No uses RS232	Yes (48)	Yes	XLR	**Yes**
GML	Automation	?	?	?	XLR	

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